22. The apparatus of claim 21, wherein the target comprises a material that retains magnetic properties when deposited on the surface of a substrate.

23. The apparatus of claim 23, wherein the target is separated from the substrate support by a distance of at least 50 mm.

24. The apparatus of claim 21, wherein the annular magnet array comprises a plurality of magnetic segments positioned in an annular configuration around the perimeter of the substrate support, the plurality of magnetic segments having different magnetic orientations that cooperatively combined to magnetic field that is parallel to the substrate surface.

25. The apparatus of claim 23, wherein the target comprises a nickel/iron alloy.

26. The apparatus of claim 21 wherein the target and the substrate supporting surface are separated by a distance of at least 50 mm.

27. A method for depositing a magnetic film within a sputtering chamber containing a target and a substrate, comprising:

sputtering the target onto a surface of the substrate at a pressure less than about 15 mTorr;

collimating sputtering of the target with a grounded collimator disposed between the target and the substrate; and

generating a magnetic field that is substantially parallel to the surface of substrate during sputtering using an annular magnet array concentrically disposed around a perimeter of the surface of the substrate within the sputtering chamber.

28. The method of claim 27, wherein the sputtering occurs at a chamber pressure less

than about 5 mTorr.

29. The method of claim 27, wherein the target and the surface of the substrate are maintained at a distance of at least 50 mm during sputtering.

30. The method of claim 29, wherein the target comprises a Ni/Fe alloy.

31. The method of claim 27, wherein the grounded collimator removes charges from target particles and reduces interference with the parallel magnetic field.

32. The apparatus of claim 21, wherein said magnetic field at said substrate surface is substantially parallel to said substrate surface.

33. The apparatus of claim 21, wherein said annular magnet array comprises a plurality of permanent magnets.

34. The apparatus of claim 33, wherein said plurality of permanent magnets are magnetized parallel to a plane of said substrate surface

35. The apparatus of claim 21, wherein said annular magnet array is a Halbach array.

36. The method of claim 27 wherein said target comprises a material that is magnetic when sputter deposited in a substantially parallel magnetic field.

37. The method of claim 27, wherein said annular magnet array comprises an array of permanent magnets magnetized parallel to a plane of the surface of the substrate during sputtering.

38. The method of claim 27, wherein said annular magnet array comprises a Halbach array.

39. The method of claim 27, wherein said magnetic field at the surface of the substrate is substantially parallel to the surface of said substrate.

40. The method of claim 27, wherein the substrate is processed to form a magnetic recording head.

41. (New) An apparatus for depositing a magnetic film, comprising:

a sputtering chamber configured to receive a sputtering target for sputter depositing a magnetically alignable material onto a substrate supported on a support surface in opposition to said target along an axial direction; and

a stationary annular array of permanent magnets surrounding an outer periphery of said support surface and continuously extending from one side to the other side of said support surface parallel to said central axis and creating a magnetic field extending horizontally along said support surface.

42. (New) The apparatus of claim 41, wherein said array is a Halbach array.

43. (New) The apparatus of claim 40, further comprising a grounded collimator positioned between said target and said support surface.

44. (New) The apparatus of claim 40, wherein said material comprises nickel and iron.